

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (currently amended): A wet cleaning or wet etch facility, comprising:

at least one cleaning or etching chemical bath comprising including a vessel having an open top, and a respective chemical solution contained in the vessel, whereby wafers can be dipped into the chemical solution contained in the vessel, and wherein the chemical solution is selected from the group consisting of a solution comprising ammonia, hydrogen peroxide and water, a solution comprising hydrochloric acid, hydrogen peroxide and water, and a solution comprising sulfuric acid and hydrogen peroxide;

a drying unit disposed downstream of said at least one chemical bath in the facility and operable to dry wafers;

a final rinse bath interposed between the at least one chemical bath and the drying unit in the facility, the final rinse bath including a rinsing vessel, and a rinsing liquid contained in the rinsing vessel for rinsing wafers cleaned or etched in the at least one chemical bath;

a robot arm having a working envelope encompassing said at least one chemical bath ~~baths~~ bath, said final rinse bath and said drying unit so as to be operable to transport wafers to said at least one chemical bath, to said final rinse bath and to said

drying unit in sequence;

a bubble-detecting sensor operatively associated with each said at least one chemical bath so as to sense the amount of bubbles produced in the chemical solution of said bath and operative to generate signals indicative of said amount of bubbles; and

a controller to which said bubble-detecting sensor is operatively connected so as to receive said signals.

Claim 2 (currently amended): The facility according to claim 1, wherein said bubble-detecting sensor comprises a vibration sensor operative to generate a signal indicative of the amount said chemical solution is vibrating.

Claim 3 (currently amended): The facility according to claim 1, wherein said bubble-detecting sensor comprises an optical sensor operative to generate a signal indicative of the color of said chemical solution.

Claim 4 (original): The facility according to claim 1, wherein said bubble-detecting sensor comprises a photo sensor having a light-transmitter and a light receptor.

Claim 5 (currently amended): The facility according to claim 1, wherein each said at least one chemical bath comprises an internal chemical tank that contains the chemical solution, and an external chemical tank positioned relative to said internal chemical tank so as to receive chemicals that overflow out of the internal chemical tank, and further comprising a chemical circulating line extending from a bottom portion of said external chemical tank to an upper portion of said internal chemical tank and through which the chemical solution is circulated from said external chemical tank back into said internal chemical tank, and a second bubble-detecting sensor operatively associated with said chemical circulating line so as to sense the amount of bubbles entrained in the chemical solution within said chemical circulating line and operative to generate signals indicative thereof, said controller being operatively connected to said second bubble-detecting so as to receive the signals generated thereby.

Claim 6 (original): The facility according to claim 1, wherein each said at least one chemical bath comprises a vessel having transparent side walls.

Claim 7 (original): The facility according to claim 5, wherein each said at least one chemical bath comprises a vessel having transparent side walls.

Claim 8 (original): The facility according to claim 5, wherein said chemical

circulating line is transparent.

Claim 9 (original): The facility according to claim 7, wherein said chemical circulating line is transparent.

Claim 10 (currently amended): A wet cleaning or wet etch facility, comprising:

at least one cleaning or etching chemical bath comprising an internal chemical tank, a respective chemical solution contained in the internal chemical tank, and an external chemical tank positioned relative to said internal chemical tank so as to receive chemicals that overflow out of the internal chemical tank, ~~whereby~~ and wherein the chemical solution is selected from the group consisting of a solution comprising ammonia, hydrogen peroxide and water, a solution comprising hydrochloric acid, hydrogen peroxide and water, and a solution comprising sulfuric acid and hydrogen peroxide such that a source of contamination can be removed by the chemical solution from the surface of a wafer by dipping the wafer into the chemical solution contained in the internal chemical tank;

a drying unit disposed downstream of said at least one chemical bath in the facility and operable to dry wafers;

a final rinse bath interposed between the at least one chemical bath and the drying unit in the facility, the final rinse bath including a rinsing vessel, and a rinsing liquid contained in the rinsing vessel for rinsing wafers cleaned or etched in the at

least one chemical bath;

a robot arm having a working envelope encompassing said at least one chemical ~~baths~~ bath, said final rinse bath and said drying unit so as to be operable to transport wafers to said at least one chemical bath, to said final rinse bath and to said drying unit in sequence;

a chemical circulating line extending from a bottom portion of said external chemical tank to an upper portion of said internal chemical tank and through which the chemical solution is circulated from said external chemical tank back into said internal chemical tank;

a bubble-detecting sensor operatively associated with said chemical circulating line so as to sense the amount of bubbles entrained in the chemical solution within said chemical circulating line and operative to generate signals indicative thereof; and

a controller operatively connected to said bubble-detecting sensor so as to receive said signals therefrom.

Claim 11 (currently amended): The facility according to claim 10, wherein said bubble-detecting sensor comprises a vibration sensor operative to generate a signal indicative of the amount said chemical solution is vibrating.

Claim 12 (currently amended): The facility according to claim 10, wherein said bubble-detecting sensor comprises an optical sensor operative to generate a signal indicative of the color of said chemical solution.

Claim 13 (original): The facility according to claim 10, wherein said bubble-detecting sensor comprises a photo sensor having a light-transmitter and a light receptor.

Claim 14 (original): The facility according to claim 10, wherein said chemical circulating line is transparent.

Claim 15 (new): The facility according to claim 1, wherein the at least one chemical bath comprises a first vessel and a solution comprising ammonia, hydrogen peroxide and water contained in the first vessel, a second vessel and a solution comprising hydrochloric acid, hydrogen peroxide and water contained in the second vessel, and a third vessel and a solution comprising sulfuric acid and hydrogen peroxide contained in the third vessel.

Claim 16 (new): The facility according to claim 15, wherein the rinsing liquid is deionized water.

Claim 17 (new): The facility according to claim 1, wherein the rinsing liquid is deionized water.

Claim 18 (new): The facility according to claim 10, wherein the at least one chemical bath comprises a first vessel and a solution comprising ammonia, hydrogen peroxide and water contained in the first vessel, a second vessel and a solution comprising hydrochloric acid, hydrogen peroxide and water contained in the second vessel, and a third vessel and a solution comprising sulfuric acid and hydrogen peroxide contained in the third vessel.

Claim 19 (new): The facility according to claim 18, wherein the rinsing liquid is deionized water.

Claim 20 (new): The facility according to claim 10, wherein the rinsing liquid is deionized water.